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UNCLASSIFIED

Data Science at Scale Tutorial

David Rogers, LANL

Andy Bauer, Kitware, Inc.

ParaView Catalyst Tutorial

Thursday, October 23, 2014

9AM to Noon

Encantado Computer Training Room
Central Park Square
(TA-00, Bldg. 0767, Room 143)

Abstract: As supercomputing moves towards exascale, scientists, engineers and medical researchers will look for efficient and cost effective ways to enable data analysis and visualization for the products of their computational efforts. The 'exa' metric prefix stands for quintillion, and the proposed exascale computers would approximately perform as many operations per second as 50 million laptops. Clearly, typical spatial and temporal data reduction techniques employed for post processing will not yield desirable results where reductions of 10e3, 10e6, or 10e9 may still produce petabytes, terabytes or gigabytes of data to transfer or store. Since transferring or storing data may no longer be viable for many simulation applications, data analysis and visualization must now be performed in situ. ParaView Catalyst is an open-source data analysis and visualization library, which aims to reduce IO by tightly coupling simulation, data analysis and visualization codes. This tutorial presents the architecture of ParaView Catalyst and the fundamentals of in situ data analysis and visualization. Attendees will learn the basics of using ParaView Catalyst with hands-on exercises. The tutorial features detailed guidance in implementing C++, Fortran and Python examples. Attendees should bring laptops to install a VirtualBox image and follow along with the demonstrations. Attendance is limited. Please send email to dssweb@lanl.gov to register.

Biography: David Honegger Rogers joined LANL in 2013, after a decade of leading the Scalable Analysis and Visualization Team at Sandia National Labs, where he was instrumental in bringing in-situ analysis and visualization into production. Prior to working on large scale data analysis, David worked at DreamWorks Feature animation, writing and managing production software. Andy Bauer joined Kitware in January 2008 as an R&D Engineer. Dr. Bauer's research is enabling technologies for large-scale numerical simulations. His focus areas develop preprocessing tools for PDE-based simulations and performing co-processing/in situ analysis and visualization with simulation codes on supercomputers. His work has primarily focused on mesh based numerical simulations

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For more information contact the technical host John Patchett, patchett@lanl.gov, 665-1110.

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